Denver's Pet Spy Camera

User's Manual

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Content

1.1 General Description 1
1.2 Camera Body Interfaces 1
1.3 Program Remote Display 1
1.4 Supported Format 2
2 Cautions 3
3 Quick Start Guide ..... **Error! Bookmark not defined.**
3.1 Power Supply 4
3.2 Insert the SD-card 4
3.3 Powering On 4
3.4 Enter into the TEST Mode 5
3.4.1 Customer Settings 5
3.4.2 Manual Capturing 5
3.4.3 View Images or Videos 5
3.5 Power Off 5
4 Advanced Operations 6
4.1 Settings Menu 6
4.1.1 Default Settings 7
4.1.2 Set Camera Mode 7
4.1.3 Format SD-Card 7
4.1.4 Set Video Size 8
4.1.5 Set Date and Time 8
4.1.6 Set Continuous Capturing Number 8
4.1.7 Set Video Length 8
4.1.8 Set Triggering Interval Time 9
4.1.9 Set PIR Sensitivity 9
4.1.10 Set Date and Time Stamp 9
4.1.11 Set Timer 9
4.1.12 Reset to Default Settings 9
4.1.13 View Image or Video 10
4.1.14 Delete Image or Video 10
4.2 File Numbering 10
4.3 Firmware Upgrade 10
Appendix Ⅰ: Technical Specifications 11
Appendix Ⅱ: Parts List 12

1 Instructions

1.1 General Description

Denver's Pet Spy Camera is a digital infrared surveillance camera, triggered by any movement of humans or animals monitored by a high sensitive Passive Infrared (PIR) motion sensor, and then automatically captures high quality pictures (up to 3M pixels) or records video clips (VGA) according to default settings or preset customer settings. Excellent for documenting animal traffic and human traffic.

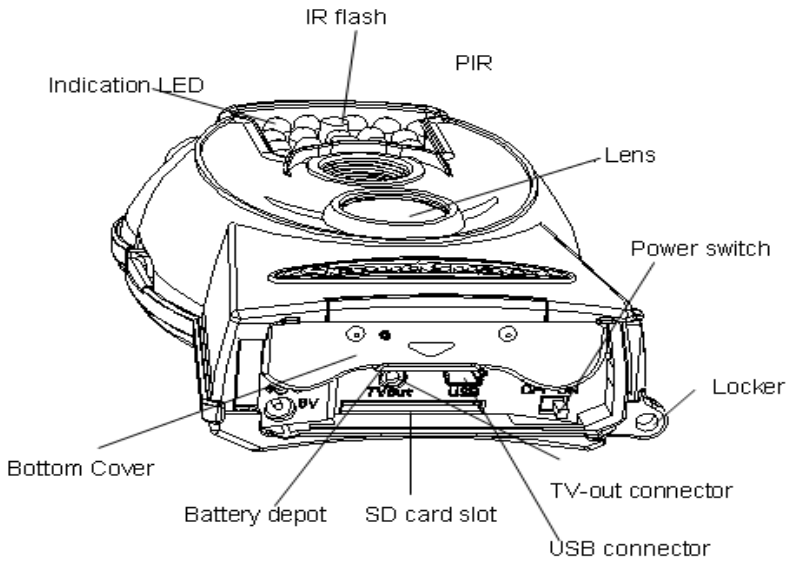
It takes color pictures or videos under sufficient daylight. During the night, the built-in infrared LEDs function as the flash. The camera then takes black and white pictures or videos (monochrome).

It is resistant against water and snow for outside uses. Furthermore, the camera can be used as a portable digital camera. Pictures or videos can be taken manually by pressing **OK** on the control in **TEST** mode (The remote needs to be connected).

1.2 Camera Body Interfaces

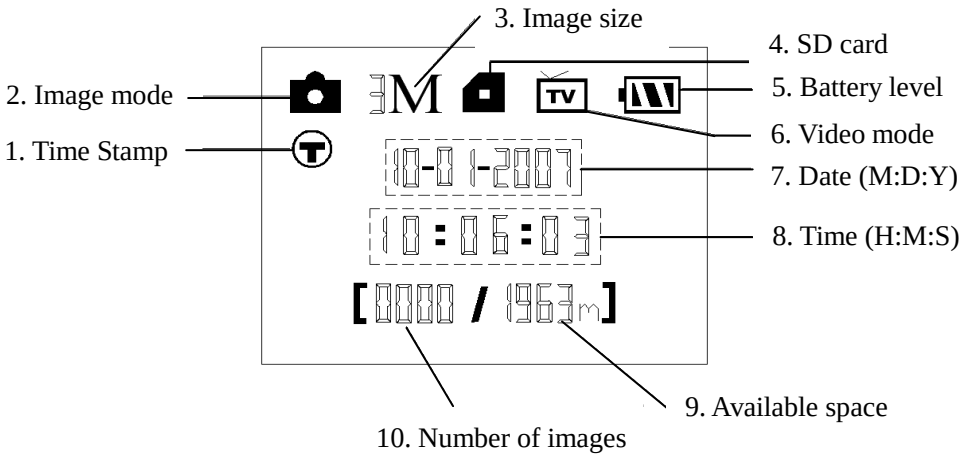
The camera has the following I/O interfaces: USB connector, SD-card slot, TV output and external DC power connector.

On the bottom of the camera, there is a clasp for a padlock to secure the SD card and controls. Take a few moments to familiarize yourself with the camera controls and displays. It is helpful to bookmark this section and refer to it when reading through the rest of the manual.



1.3 Program Remote Display

When the camera is turned on (the power switch is slid to the **ON** position), the setup information will be displayed on the remote monitor.



1.4 Supported Format

Item	Format
Image	JPG
Video	AVI
File format	FAT32

Here are some important notices. The file system format is not a concern of the camera unless you have problems with reading the SD-card with other devices. If this happens, please format the SD-card in the camera or in a computer and then reinsert the card into your camera. We suggest selecting FAT32 when formatting

2 Cautions

★ The working voltage of the camera is 6V. The camera is supplied by four AA batteries.

★ Please install batteries according to shown polarity.

★ Please unlock the write-protect before inserting the SD-card.

★ Please insert the SD-card when the power switch is at the **OFF** position before testing the camera. The camera has no internal memory for saving images or videos. If no SD-card is inserted, the camera will shut down automatically after a continuous indication sound.

★ Please do not insert or take out the SD-card when the power switch is at the **ON** position.

★ It is recommended to format the SD-card by the camera when used for the first time.

★ The camera will be in USB mode when connected to the USB port of a computer. In this case, the SD-card functions as a removable disk.

★ In the **TEST** mode (insert the control into the USB interface then switch the camera at **ON** position), the camera will shut down automatically after 3 minutes if no operation is done. Please turn on the power again if you want to continue to work with the control.

★ Please ensure sufficient power when having a firmware upgrade, otherwise the upgrade process could be interrupted. If any fault occurs after an improper upgrading process, the camera may stop functioning properly.

3 Quick Start Guide

3.1 Power Supply

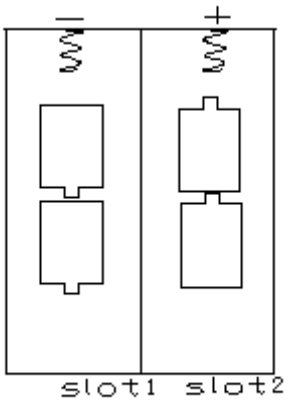
To supply power for the camera, four size AA batteries are needed.

Open the bottom cover. Confirm that the power switch is in the **OFF** position. Install the fully charged batteries into the slot according the polarities sign shown below. The following batteries with 1.5V output can be used:

1. High-density and high-performance alkaline batteries (Recommended)
2. Rechargeable alkaline batteries
3. Rechargeable NiMH batteries

There are two battery slots.

When in low-battery state, camera will be automatically shut down after two indication sounds. Please change the batteries at this time.



3.2 Insert the SD-card

Open the bottom cover. Insert a SD-card into the card slot with unmarked side facing up. Please note that the SD-card can only be inserted in one direction. Make sure that the write-protect switch of the SD-card is on the "write" position (not the locked position), otherwise the camera will not function properly.

3.3 Powering On

Before switching on, please pay attention to the following:

1. Avoid temperature and motion disturbances in front of the camera such as a large leaf, curtain, air-conditioner, air outlet of the chimney and other heat sources to prevent the camera from false triggers.
2. The height from the ground for placing the camera should vary with the object size and range you are wishing to monitor. In general, **three** to **six feet** is preferred.

Slide the power switch to the **ON** position to power on the camera and enter into the **ON** mode.

After switching the camera on, the motion indication LED (red) light will blink for about 10s. The 10s is a buffering time before automatically capturing photos or videos. This gives the operator time for closing and locking the bottom cover, adjusting the camera and walking away.

In **TEST** mode, it requires a connection to the remote; then you can further customize your settings. When the user completes the settings, it is required to unplug the remote to enter into normal use. That is, **if the program remote is still connected with the camera, the camera will not work.** The camera (the remote must be unplugged when in **ON** mode) will take pictures or videos automatically according to the default settings or preset customer settings.

3.4 Enter into the TEST Mode

Connect the program remote, then switch to the **ON** position and enter into the **TEST** mode. There are three functions in **TEST** mode: Customer settings, manual capture, and preview. The program remote is needed in this mode.

3.4.1 Customer Settings

Press **MENU** on the remote to enter into the menu settings. The camera can be manually customized which will be displayed on the LCD screen on the camera or on the external TV monitor. The detailed operations will be described in the "Advanced Operations" chapter.

3.4.2 Manual Capturing

The TV-in connector should be unconnected, and then press the **SHOT** button to manually capture photos or record videos. Also, press the **SHOT** key to end the manual capturing of the video.

3.4.3 View Images or Videos

To view an image or video, use a TV or computer monitor which connects to the camera with a TV cable.

Press **OK** to view the images. The most recent image will be shown in the LCD screen on the TV monitor. Press **UP** to view the previous image and press **DOWN** for the next.

The detailed operations like deleting images or videos will be described in "Advanced Operations" chapter.

3.5 Power Off

Switch the camera to the **OFF** position to power off the camera. Please note that even in the **OFF** mode, the camera still consumes a certain amount of power. Therefore, please remove the batteries if the camera will not be used for a long period of time.

4 Advanced Operations

From the basic operations previewed in the previous chapter, we know that the camera has three basic operation modes:

1. **OFF** mode: Power switch is at the **OFF** position.
2. **ON** mode: Power switch is at the **ON** position.
3. **TEST** mode: Power switch is at the **ON** position and the remote needs to be connected.

In the above three modes, the **OFF** mode is the specified safe mode when replacing the SD-card or batteries and transporting the camera.

This chapter explains the advanced operations for customizing the camera settings. The settings can only be customized in **TEST** mode with the use of the remote.

4.1 Settings Menu

To view the camera settings menu, press **MENU** in the **TEST** mode (Power switch is in the **ON** position and the remote needs to be connected). The settings menu will be shown on the LCD on the camera or the external TV monitor (only when the camera is connected to a TV).

Setting Items	Description
Camera Mode	Choose capturing images or recording videos.
Format	Format the SD-card. All images and videos in the SD-card will be deleted.
Video Size	Choose the video size, e.g. 640×480 (VGA).
Set Clock	Set camera date and time.
Capture Number	Choose the amount of shots with each trigger.
Video Length	Choose duration of recording video.
Interval	Choose how long the camera will stop functioning after each triggering. The camera's PIR will be disabled during this interval.
Sense Level	Choose sensitivity of the PIR. The camera PIR is strongly related to the temperature. On high, the camera will trigger more easily. Therefore we recommend the **High** setting for temperatures exceeding 95 degrees Fahrenheit. Use the **Low** setting for temperatures below 35 degrees Fahrenheit to reduce false triggers. For normal use of the camera, the **Normal** mode is recommended and is the default setting.
Time Stamp	Date and time of capturing can be imprinted on an image or video.
Timer Switch	The camera can be set to only record/capture at a certain time of the day when set to **On**. The rest of the time the camera will be shut off and will not record any triggers set off by movement. This function can be set to **Off** and will function to the interval settings.
Default Set	Restore all customer settings to default values.

4.1.1 Default Settings

Default settings are listed below:

Setting Items	Default	Options	Submenu
Camera Mode	Image	Video	
Format	Enter		Yes, No
Video Size	640×480	320×240	
Set Clock	Enter		Adjust Clock
Capture Number	1 Photo	2 Photo, 3 Photo	
Video Length	Avi 10 seconds	Avi 1–60 seconds	
Interval	1 Minute	0–59 seconds, 1-60 minutes	
Sense Level	Normal	High, Low	
Time Stamp	On	Off	
Timer Switch	Off	On	Start, Stop (00:00 – 23:59)
Default Set			

4.1.2 Set Camera Mode

There are two ways to set the camera mode: 1. Via shortcut key; 2. Via setting menu.

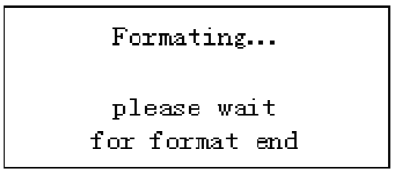
1. Shortcut key: Press **UP** to set the camera mode as **Video** or press **DOWN** to set camera mode as **Image** in info display of **TEST** mode.
2. Setting menu: The following shows how to set camera mode to **Video**, provided that the previous option is **Image**:
   a) Press **MENU** to display the setting menu.
   b) Press **UP** or **DOWN** to select **Mode**.
   c) Press **RIGHT** to select **Video**.
   d) Press **OK** to save the current setting and the option will be un-highlighted. Press **MENU** to cancel setting and return to info display.

4.1.3 Format SD-Card

The system will delete all images or videos stored in the SD-card after formatting, make sure that you have made a backup of important data.

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Format**.
c) Press **OK** to choose **Enter** to enter into submenu.
d) Press **RIGHT** to select **Yes**. **Yes** will be highlighted.

e) Press **OK** to start formatting the SD-card. During formatting, the display screen will show a message "Formatting…" as below.
Press **MENU** to cancel setting and return to info display.



4.1.4 Set Video Size

The following shows how to set video size as **320×240** provided that the previous option is at **640×480**:

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Video Size**.
c) Press **RIGHT** to select **320×240**.
d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.5 Set Date and Time

The date format is **month**/**day**/**year**, the time format is **hour**: **minute**: **second**. The valid value for year is between 2006 and 2031. Provided that the date and time are needed to be set to November 15th, 2007 at 10:30, the steps are as following:

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Set Clock**.
c) Press **OK** to **enter** into submenu.
d) Press **RIGHT** to select item, press **UP** or **DOWN** to change the value.
e) Press **OK** to save all current setting and return to info display.
Press **MENU** to cancel setting and return to info display.

4.1.6 Set Continuous Capturing Number

The following shows how to set continuous capture number to **3 Images** provided that the previous option is **1 Image**:

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Capture Number**.
c) Press **RIGHT** to select **3 Images**.
d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.7 Set Video Length

Press **RIGHT** to decreases or increases the value by 1 second.

The following shows how to set video length to **5 Seconds** provided that the previous value is **1 Seconds**:

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Video Length**.
c) Press **RIGHT** to increase to **5 Seconds**.
d) Press **OK** to save the current setting and the option will be un-highlighted.

Press **MENU** to cancel setting and exit.

4.1.8 Set Triggering Interval Time

Press **RIGHT** to decreases or increases the value by 1 second or 1 minute.

The following shows how to set triggering interval time to **5 Minutes** provided that the previous value is **1 Minute**.

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Interval**.
c) Press **RIGHT** to decrease or increase to **5 Minutes**.
d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.9 Set PIR Sensitivity

It is recommended to use **Normal** mode. The following shows how to set PIR sensitivity as **Low** provided that the previous option is **Normal**.

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Sense Level**.
c) Press **RIGHT** to select **Low**.
d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.10 Set Date and Time Stamp

The following shows how to set time stamp as **Off** provided that the previous option is **On**.

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Time Stamp**.
c) Press **RIGHT** to select **Off**.
d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.11 Set Timer

The setting steps are similar to **Set Clock**.

Please note that the start and stop time can only be effective when the timer is set as **On**. Provided that the camera should work from eight a.m. to five p.m., the steps are as following:

a) Press **MENU** to display the setting menu.
b) Press **UP** or **DOWN** to select **Timer Switch**.
c) Press **RIGHT** to select **On**.
d) Press **OK** to enter into submenu.
Press **MENU** to cancel setting and return to info display
e) Press **RIGHT** to select item, press **UP** or **DOWN** to change the value.
f) Press **OK** to save all current setting and the option will be un-highlighted.
Press **MENU** to return to previous menu.

4.1.12 Reset to Default Settings

To reset the setting to the default values, the steps are as follows:

a) Press **MENU** to display the setting menu.

b) Press **UP** or **DOWN** to select **Reset**.
c) Press **OK** to reset to default settings and return to info display.
Press **MENU** to cancel setting and return to info display.

4.1.13 View Image or Video

a) Switch to **TEST** mode and enter into info display.
b) Press **OK** to view the latest picture (or video) in the TV monitor or Image viewer with TV-in connector.
c) Press **NEXT** to start playing the video clip in TV monitor. NOTE: Video clip or pictures cannot be played in LCD screen on the control.
d) Press **NEXT** to stop playing and return to playback mode.
e) Press **UP** to view the next picture (or video) and **DOWN** for the previous.
f) Press **OK** to return to info display.

When viewing images, the total number of all images in the SD-card, and the index of the displaying image will be shown respectively.

4.1.14 Delete Image or Video

a) View the image (or video) which to be deleted.
b) Press **MENU** to display the DELETE SELECT menu.
c) Press **SHOT** to select **delete One or All image** . **One** is highlighted.
d) Press **OK**, **No** and **Yes** are prompted. **No** is highlighted.
e) Press **SHOT** to highlight **Yes**.
f) Press **OK** to delete the image or video.
Press **MENU** to cancel and return to playback.

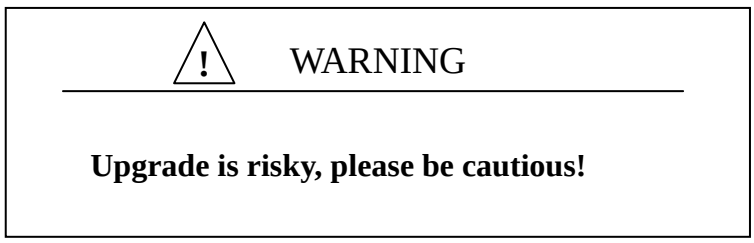
Please note that after deleting a picture or a video file, the deleted files can't be restored! Furthermore, in order to delete all images and video clips in the SD-card, it is suggested to format the SD-card.

4.2 File Numbering

Images and videos are saved in the pre-named folder. File numbering continues by adding one to the last number for each new image or video. The saving name likes IM000001.JPG or IM000001.AVI. Through the suffix you can distinguish whether the file is an image (with suffix .jpg) or a video (with suffix .avi).

4.3 Firmware Upgrade

This camera is equipped with an automatic upgrade function for you. Upgrading is needed only when an improved firmware is available.



Appendix Ⅰ: Technical Specifications

Image Sensor	3MP Color CMOS
Lens	F/NO=3.1mm FOV(Field of View)=40°
IR-Flash	10-12m
Display Screen	1.7" LCD
Memory Card	From 8 MB to 8 GB
Picture Resolution	3MP = 2048×1536
Video Resolution	640×480 (16fps) 320×240 (20fps)
PIR Sensor	Multi Zone
PIR Sensitivity	Adjustable (High/Normal/Low)
Trigger Time	1.2s
Weight *	0.2 kg
Operation/Storage Tem.	-20 - +60°C / -30 - +70°C
Interval	1s – 60 min.
Photo Burst	1–3
Video Length	1–60s
Power Supply	4× AA
Stand-by Current	< 0.25 mA (<6mAh/Day)
Power Consumption	150 mA
Low Battery Alert	LED Indicator
Display Screen	LCD display on control
Mounting	Rope/Belt/Python lock
Dimensions**	145x 82x 36 mm
Operation Humidity	5% - 90%
Security authentication	FCC, CE, RoHS

*without battery

Appendix Ⅱ: Parts List

Part Name	Quantity
Digital Camera	One
Wired control	One
USB Cable	One
Belt	One
User Manual	One

For customer service inquiries please email petspycamera@gmail.com